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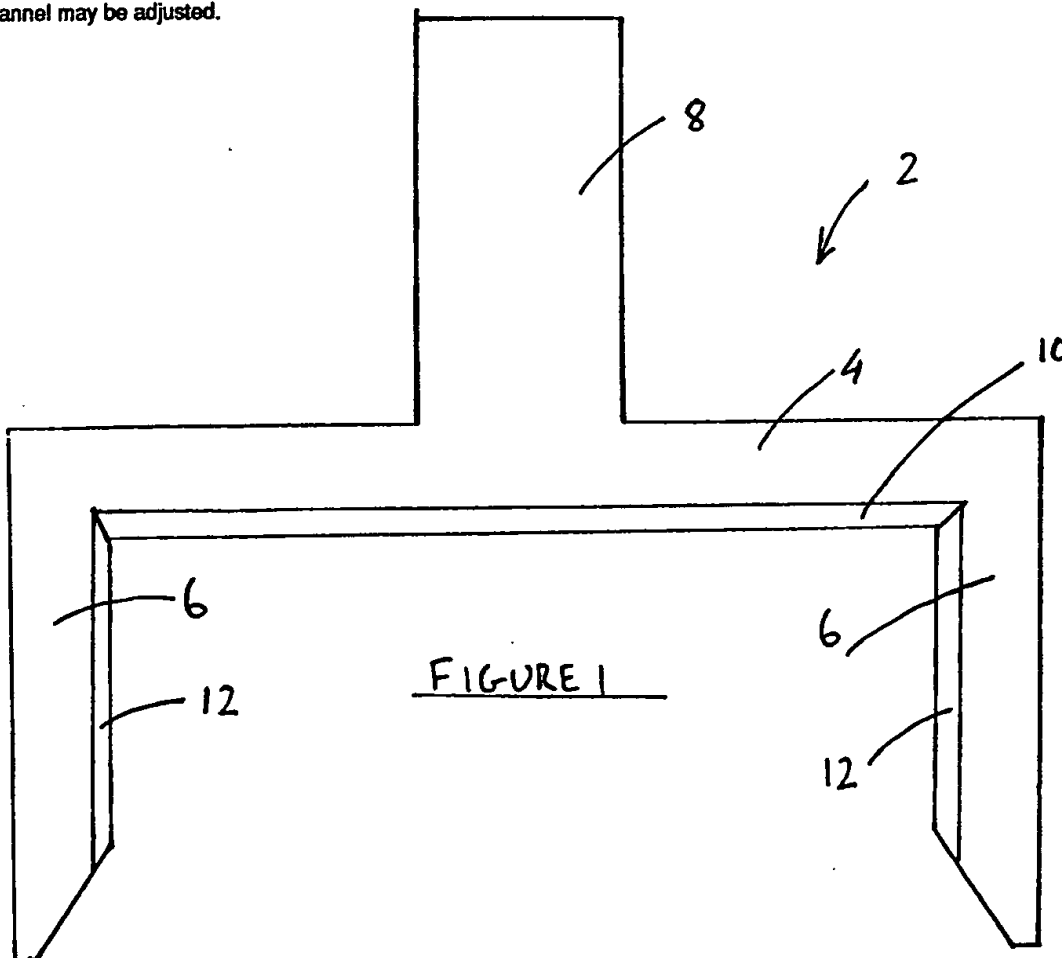
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US 4456044 A

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B5E, B5L
INT CL⁸ B26B, B27L, B28D

(54) Splitting tool

(57) A splitting tool comprises a channel-shaped member (2) having a base (4) and two side walls (6) and defining a channel for receiving a block of material to be cut, each side wall (6) of the member (2) being provided with a cutting blade (11, 12) projecting inwardly of the channel and being oriented to score side walls (6) of the block, and the said base (4) being provided with a splitting blade (10).

In a preferred embodiment, (Figs. 9-11) one side wall may be moved relative to the other, so that the width of the channel may be adjusted.



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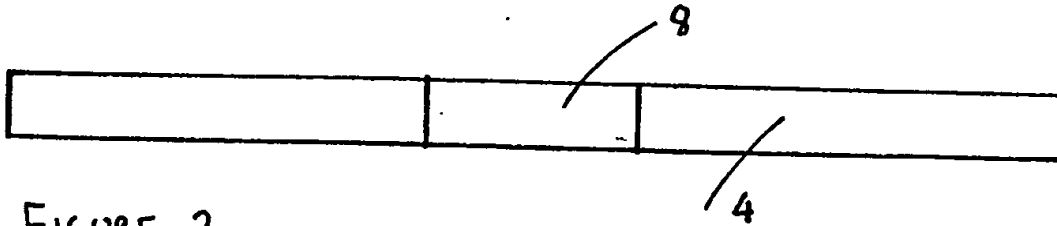


FIGURE 2

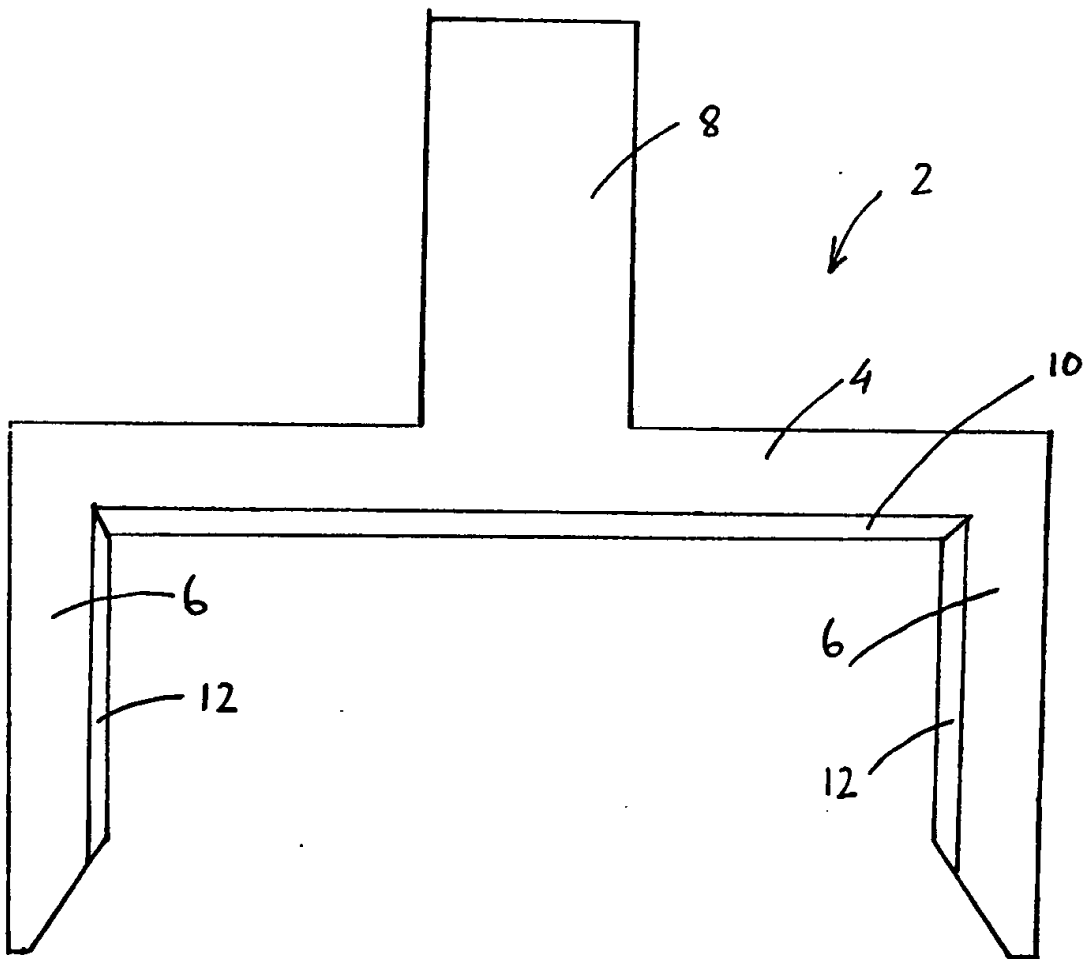


FIGURE 1

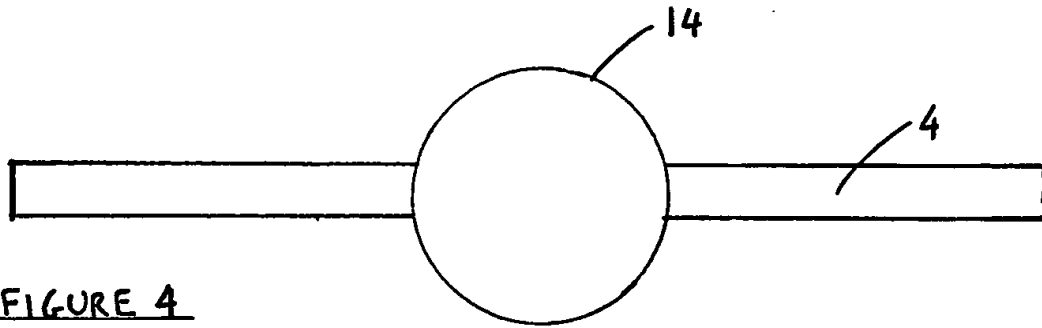


FIGURE 4

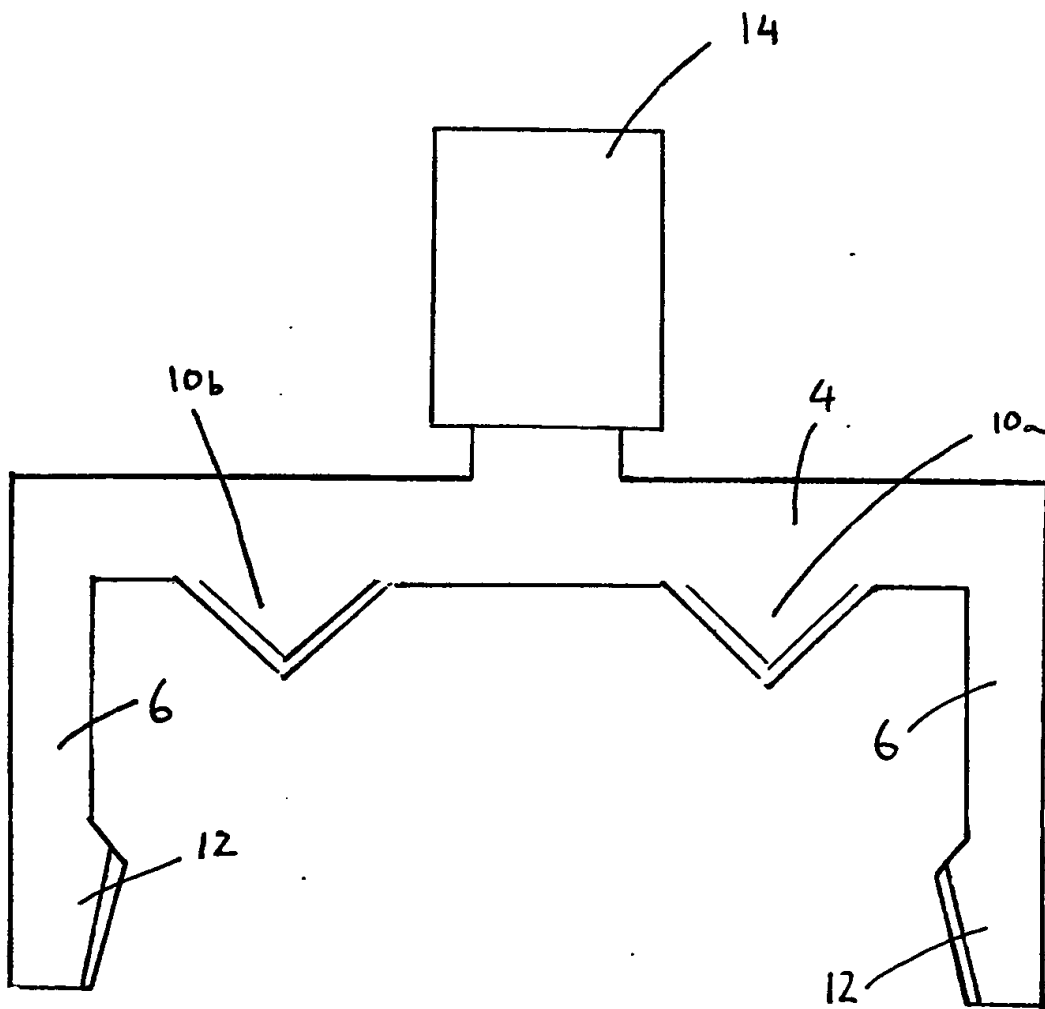
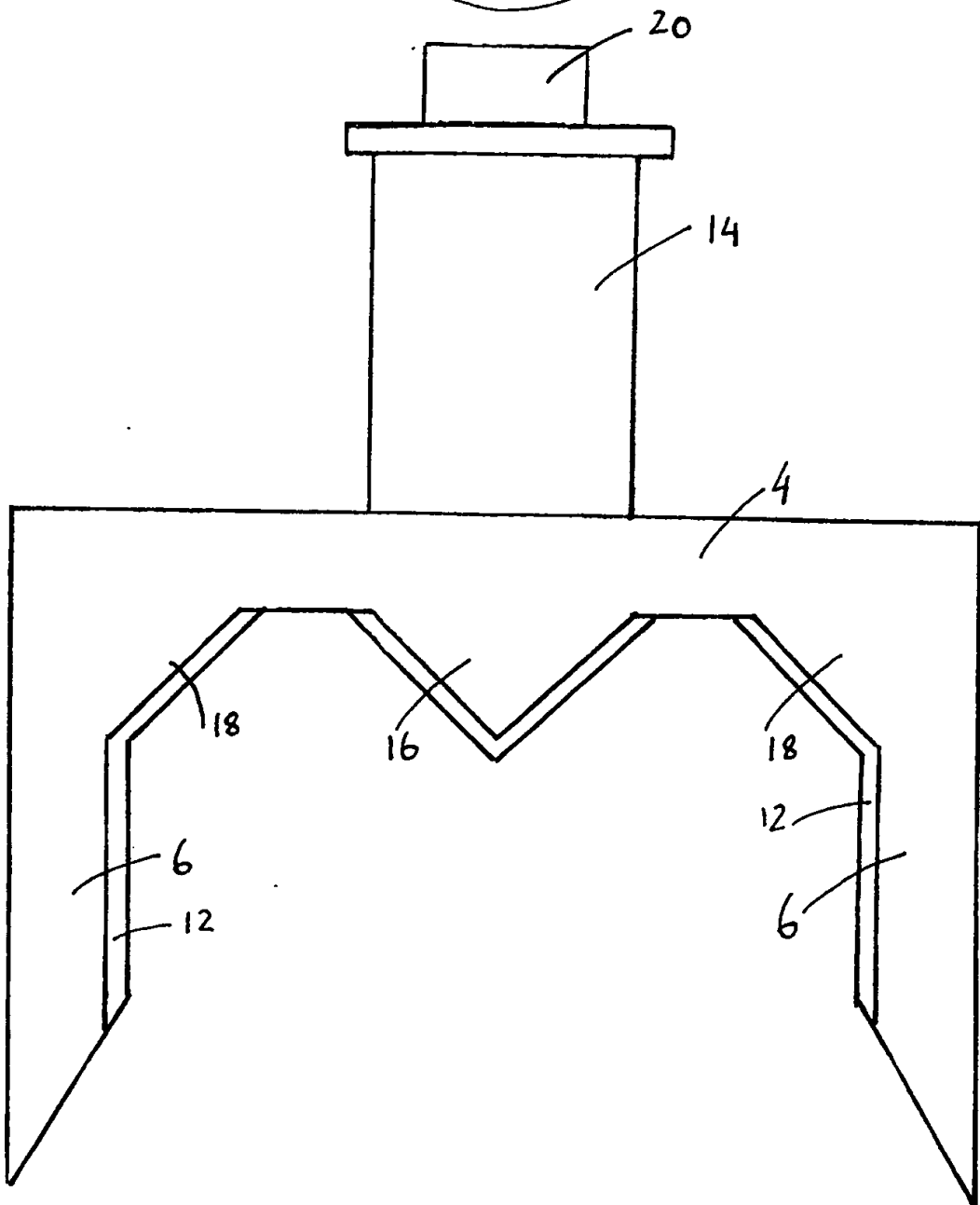
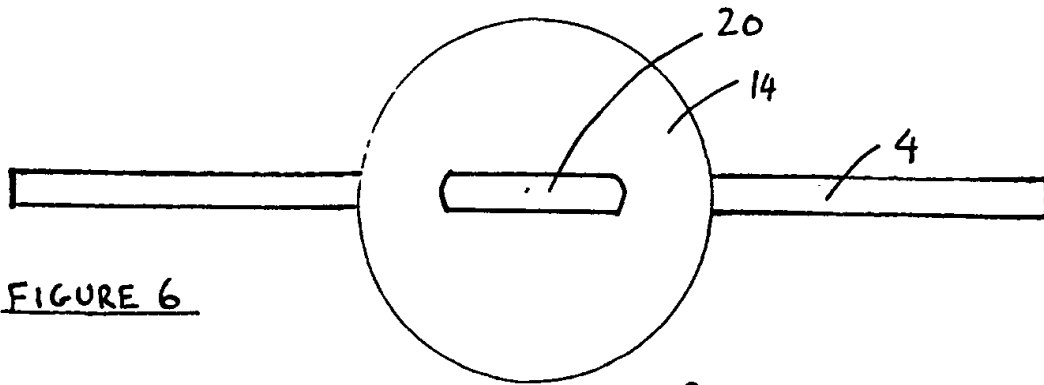


FIGURE 3

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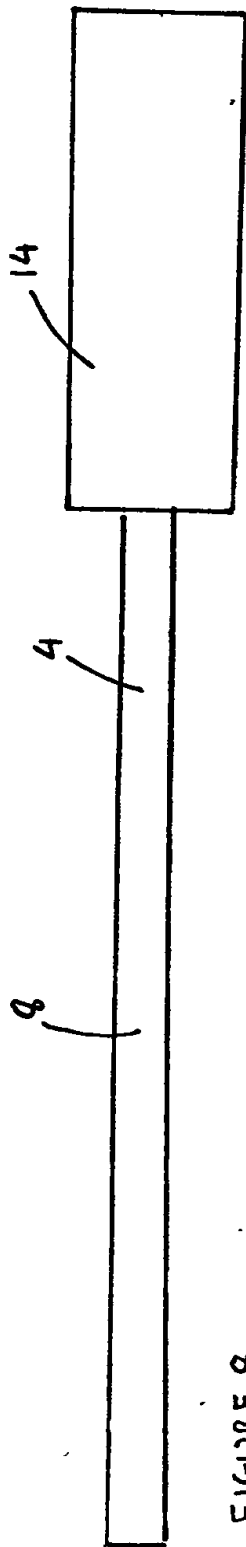


FIGURE 8

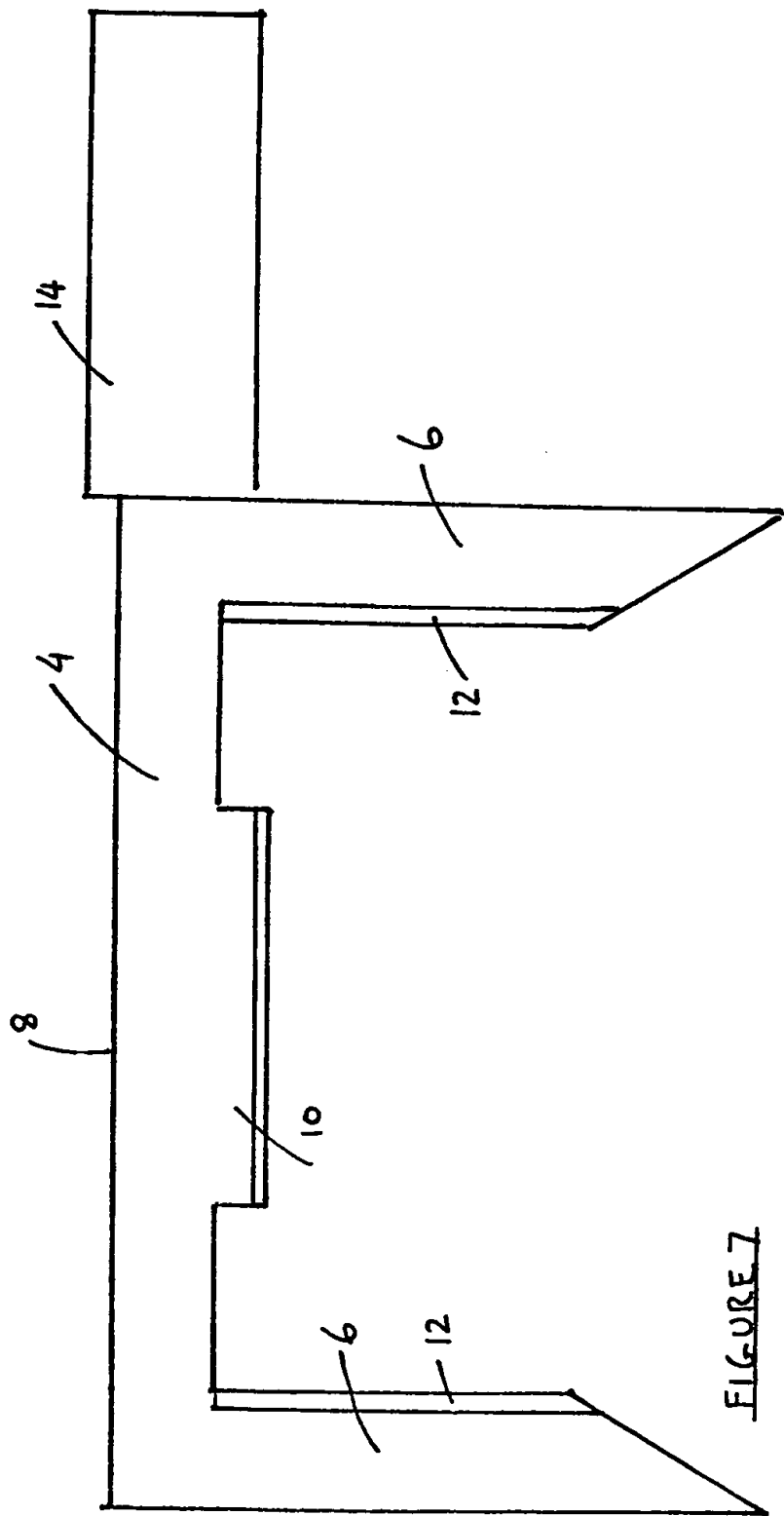


FIGURE 7

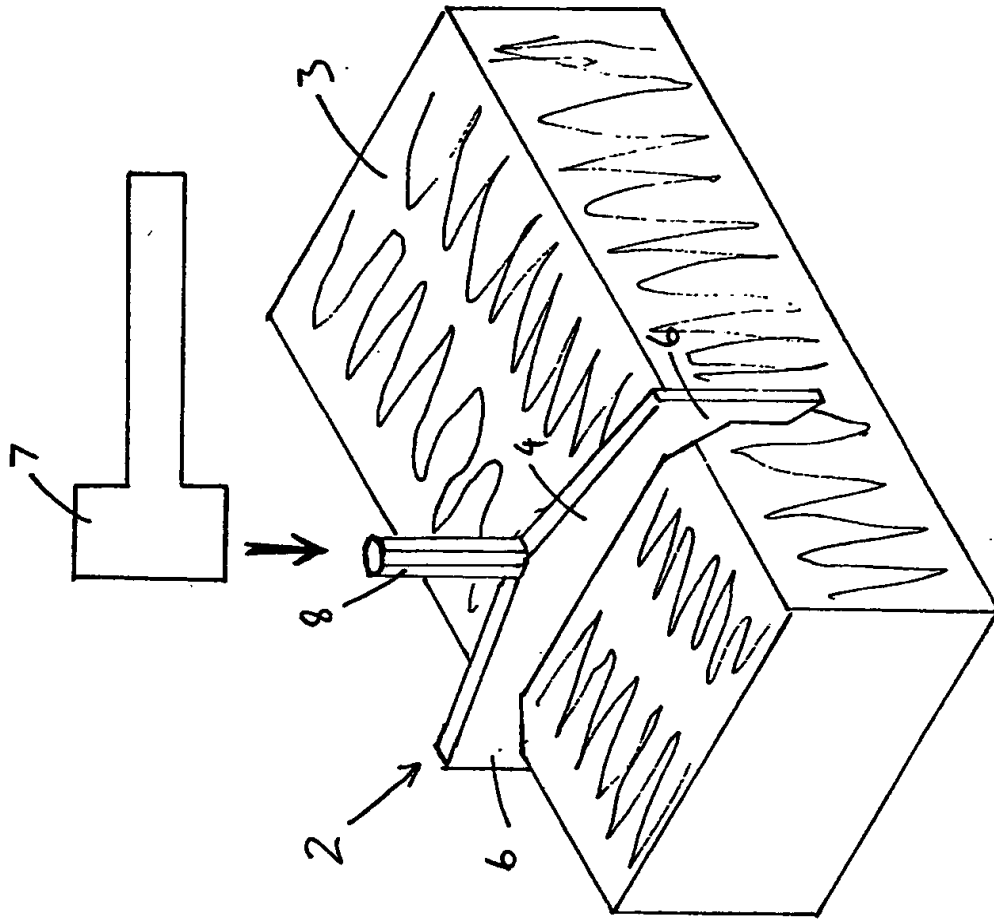


FIGURE 12

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A SPLITTING TOOL

The present invention relates to a splitting tool and particularly, although not exclusively, to a hand tool for splitting blocks.

5 It is well known to use a chisel or bolster to split standard length building blocks where a shorter length block is required. In order to split the block cleanly, the bolster is applied to opposite sides of the block in turn and is tapped gently to score the
10 block and to provide a pair of parallel artificial fracture lines. The bolster is then applied to the top surface of the block, its blade is aligned with the respective fractured surfaces, and it is then struck firmly to split the block. Considerable skill and
15 experience is required to break the block cleanly and accurately. Particular care must be taken to ensure that the bolster is not struck too firmly whilst scoring the sides of the block.

 According to the present invention, there is
20 provided a splitting tool comprising three blades, the cutting surfaces of the first and second blades being directed towards each other and defining a cutting space, the third blade being disposed between at least a part of the first and second blades at a position
25 removed from the cutting space and having a cutting surface directed towards the cutting space.

 In a preferred embodiment the splitting tool comprises a channel-shaped member having a base and two side walls defining a channel for receiving a block of
30 material to be cut, the first and second blades being cutting blades disposed on respective side walls of the channel-shaped member, projecting inwardly of the channel and being oriented to score side walls of the channel and the third blade being a splitting blade
35 disposed on the base of the channel-shaped member. Preferably, stiffeners are provided between the side

walls and the base of the channel-shaped member. The stiffeners may comprise at least a part of the third blade. Preferably, the splitting blade extends for the full width of the base of the channel-shaped member.

5 The channel-shaped member may be manufactured in one piece from steel plate either by pressing or machining. An anvil portion may be provided on the base of the channel-shaped member on the face opposite to the splitting blade. The anvil portion may comprise
10 a simple projection disposed centrally on the base of the channel-shaped member. The cutting blades may be provided at the tip end only of the side walls of the channel-shaped member. However, preferably, the cutting blades extend for the full length of the side
15 walls of the channel-shaped member.

Preferably the separation of the tip ends of the first and second blades is fixed at approximately 200mm. However, the separation of the tip ends of the blades may be made adjustable.

20 For a better understanding of the present invention and to show how it may be carried into effect, reference will now be made, by way example, to the accompanying drawings in which:

Figure 1 shows a first embodiment of the splitting
25 tool;

Figure 2 is a top view of the splitting tool of Figure 1;

Figure 3 shows a second embodiment of the splitting tool;

30 Figure 4 is a top view of the splitting tool of Figure 3;

Figure 5 shows a third embodiment of the splitting tool;

Figure 6 is a top view of the splitting tool of
35 Figure 5.

Figure 7 shows a fourth embodiment of the

splitting tool;

Figure 8 is a top view of the splitting tool of Figure 7;

Figure 9 shows a fifth embodiment of the splitting tool in which the blade separation is adjustable;

Figure 10 is a top view of the splitting tool of Figure 9;

Figure 11 is a view on arrow XI in Figure 9; and

Figure 12 shows how the splitting tool is used to split a block.

Referring to the drawings, Figures 1 and 2 show a first embodiment of the splitting tool. The splitting tool comprises a substantially channel-shaped member 2, the central portion of which comprises a base 4 provided with a splitting blade 10 which is formed integrally with the lower surface of the base 4. The upper surface of the base 4 is provided with a projection comprising an anvil portion 8 adapted to receive blows from a hammer or mallet (see Figure 12). The channel-shaped member has side walls 6 which project downwardly from the base 4 and are provided with inwardly directed cutting blades 12, which are disposed opposite one another with their cutting surfaces directed towards each other.

Figures 3 and 4 show a second embodiment of the splitting tool in which the first and second blades 12 are disposed at the ends only of the side walls 6 and are substantially triangular in shape. Instead of a single third blade 10, two substantially triangular third blades 10a, 10b are provided on opposite ends of the base 4. In this embodiment, the anvil portion 8 is provided with a cylindrical handle 14. The cylindrical handle 14 may be a simple friction fit over the anvil portion 8 or alternatively the handle may be glued, welded, riveted or screwed in position. The cylindrical handle 14 is made from impact resistant

plastic.

Figures 5 and 6 show a third embodiment of the splitting tool in which the third blade 10 comprises a central triangular blade 16 and two further blades 18 disposed between the base 4 and side wall 6. The blades 18 not only provide a cutting surface but also act as stiffeners, which reinforce the structure of the channel-shaped member. In addition, the anvil portion 8 is provided with a handle 14 and also a pommel 20 which projects above the handle 14 and protects it from impact. The channel-shaped member, anvil and pommel 20 are integrally formed from a single piece of steel, the handle 14 being moulded around the anvil portion 8.

Figures 7 and 8 show a fourth embodiment of the invention in which the third blade 10 comprises a single elongate cutting surface disposed below the base 4. In this embodiment, the anvil portion 8 comprises the top of the base 4. The handle 14 project at right angles from one side wall 6 of the channel-shaped member.

Figures 9 to 11 show a fifth embodiment of the present invention in which the width of the cutting space between the blades 12 can be varied. In this embodiment the base 4 is fixed rigidly to the side wall 6a in a similar manner to the previous embodiments. However, the end of the base 4 opposite to the side wall 6a simply terminates and forms a rail on which is slidably supported the second side wall 6b. The side wall 6b comprises a body portion 22 onto which is welded an open ended tubular housing 24. A blade 12 is welded to the body portion 22 at its end opposite to the housing 24. The interior 26 of the housing 24 is shaped to receive the free end 28 of the base 4. The housing 24 is also provided with threaded holes 30 in its top and side faces, into which are screwed fixing screws 32.

Referring to Figure 12, in operation, the channel-shaped member is gripped around the anvil portion 8 or handle 14 and is positioned over a building block 3 such that the first and second blades 12 engage the top of the block 3. The anvil portion 8 of the channel-shaped member is then struck repeatedly. The impulses applied to the anvil portion 8 cause the blades 12 to be driven down through the material of the block 3 producing a pair of parallel scores on respective sides of the block 3. After several blows the third blade 10 engages the top surface of the block 3 and one or more further blow causes the blade 10 to penetrate the top surface of the block 3. The block 3 then splits and follows the artificial fracture lines caused by the scores on the side surfaces of the block 3, producing a clean break.

Preferably, the cutting tool is dimensioned so that the first and second blades 12 are driven along the full length of the sides of the block 3 before the third blade 10 engages the top of the block 3. However this is not essential to ensure a clean break.

The particular disposition of the first and second blades 12 and third blade 10 and the number and relative separation of the blades 12, 10 may be varied depending on the material from which the block 3 is made and on the dimensions of the block 3 itself.

For general building use, commonly used blocks 3 (made by Celcon and Thermalite) have a standard height of 215mm irrespective of their length or width. Thus, in order to provide adequate scoring of the sides of such a block, the separation of the tips of the blades 12 is preferably approximately 200mm.

The adjustable cutting tool may be set as required for a particular job by sliding the housing 24 along the web 4 until the desired separation of the tips of the blades 12 is obtained. The housing 24 is then

fixed in position by tightening the threaded screws 32 against the base 4. The required position of the housing 24 relative to the base 4 to obtain a blade tip separation of 200mm is preferably marked on the base 4.

- 5 For greater speed of adjustment, a scale (not shown) may be provided along the base, which indicates a separation of the tips of the blades 12 for a given position of the housing 24 relative to the base 4.

- 10 For applications where the blocks 3 to be cut are soft (e.g. Celcon blocks), a single fixing screw 32 would be adequate to retain the housing 24 in position relative to the base 4.

CLAIMS

1. A splitting tool comprising a channel-shaped member having a base and two side walls and defining a channel for receiving a block of material to be cut,
5 each side wall of the member being provided with a cutting blade projecting inwardly of the channel and being oriented to score side walls of the block, and the said base being provided with a splitting blade.
2. A splitting tool as claimed in claim 1, in
10 which stiffeners are provided between the side walls and the base of the channel-shaped member.
3. A splitting tool as claimed in claim 2, in which stiffeners comprise at least part of the splitting blade.
- 15 4. A splitting tool as claimed in any one of the preceding claims, in which the splitting blades extends for the full width of the base of the channel shaped member.
5. A splitting tool as claimed in any one of the
20 preceding claims, in which the channel-shaped member is manufactured in one piece.
6. A splitting tool as claimed in any one of the preceding claims, in which an anvil portion is provided on the base of the channel-shaped member on the face
25 opposite to the splitting blade.
7. A splitting tool as claimed in claim 6, in which the anvil portion comprises a simple projection disposed centrally on the base of the channel-shaped member.
- 30 8. A splitting tool as claimed in any one of the preceding claims, in which the cutting blades are provided at the tip end only of the side walls of the channel-shaped member.
9. A splitting tool as claimed in any one of
35 claims 1 to 7, in which the cutting blades extend for the full length of the side walls of the channel-shaped

member.

10. A splitting tool as claimed in any one of the preceding claims, in which one side wall may be moved relative to the other so that the width of the channel
5 may be adjusted.

11. A splitting tool substantially as described herein with reference to, and as shown in, Figures 1, 2 and 12, or Figures 3 and 4, or Figures 5 and 6, or Figures 7 and 8, or Figures 9 to 11 of the accompanying
10 drawings.

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Examiner's report to the Comptroller under
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B5E; B5L

(ii) Int Cl (Edition 5) B28D, B26B, B27L

Search Examiner

J A MULLEN

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

16 August 1991

Documents considered relevant following a search in respect of claims

1-11

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
A	US 4 456 044 (CLONES)	1

SF2(p)

LJ5ABF

Category	Identity of document and relevant passages	Relevance to claim(s)

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